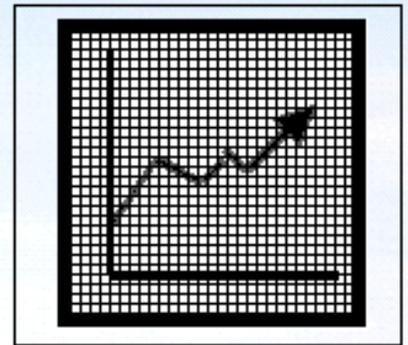


# Transformations in Global Defense Markets and Industries: Implications for the Future of Warfare



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## SCOPE NOTE

For the last two years, strategic research has been underway on the recent transformations in global defense markets and defense industries. The research has focused on the development of a better understanding of the potential implications of change for the future of warfare. Warfare in this context is taken broadly. It includes the preparation for and conduct of combat operations, as well as the basic characteristics of war as defined by grand strategy, doctrine, intelligence capabilities and expectations, and logistics writ large (armaments, mobilization, and sustainment). The time frame of interest is beyond the range of short-term planning, from 10-30 years or more into the future. The research emphasized the supply side of the global armaments process more than the demand side.

The research has included: the analysis of data on defense industries and markets; the analysis of the historical record for previous periods of fundamental military-technical change; the analysis of national literature to better understand country perspectives; mini-seminars and doctrinal investigations to explore potential future warfare aspects; and the sponsorship of conferences drawing together experts from government, academia, non-profits, and industry to discuss specific aspects of change.

The research was conducted as a part of the Director of Central Intelligence Strategic Estimates Program, which is focused on developing a better understanding of large complex strategic issues affecting the future security environment.

### [Summary: The Emerging Global Armament System and the Future of Warfare](#)

This volume summarizes the main insights from the research. Separately discussed are: global transformations in defense markets and industries; two key trends important for the future of warfare; composite characteristics of the global armaments transformation; first order security consequences of a diffused armaments world; adapting to new defense-economic realities; warfare in a diffused armaments world; specific national security issues for the United States; and important strategic uncertainties.

The organization and text of this volume greatly benefited from comments and revisions suggested by MG (ret.) [John R. Landry](#), National Intelligence Officer for Conventional Military Issues, US National Intelligence Council. An earlier abbreviated version of the text has also been published by the National Intelligence Council.

### **Country Studies**

This volume documents research on twelve specific countries. The purpose of the research was to develop a basic understanding about how those countries are dealing internally with the issues associated with change in defense markets and industries. For each country, an analysis was done of the current national security situation, the national defense industrial base, the national armament strategy, perspectives on the international arms export market, transformations in the defense industrial base, and country risks and concerns. Key observations that bear on the issue of global transformations in defense markets and industries were also identified.

## Introduction:

This volume analyzes the perspectives of twelve countries on issues associated with the transformation in defense industries and defense markets. The purpose of the analysis is to gain a basic understanding of how each of the countries is dealing with the transformations in the context of their own national security situations. Each country is discussed in a standard format that consists of several major sections.

**Current National Security Situation.** This section discusses how the country sees its security situation, what it sees as its principal concerns and threats, how it views its future military and armament requirements, perspectives on the Revolution in Military Affairs, and defense and armament budgets.

**National Defense Industrial Base.** This section discusses the basic characteristics of the country's indigenous defense industrial base. The representation of the country's defense companies on the list of top 100 global defense companies is also given.

**National Armament Strategy.** This section discusses the strategy the country is using to provide for its armament needs. This includes consideration of the distribution of armament resources between the various acquisition modes. Overall defense industrial strategy, and the use of offset requirements in foreign defense procurements are also discussed. Country import levels to support this armament strategy are also given.

**Perspectives on the International Arms Export Market.** This section discusses the country's views on the international arms export market, the important characteristics of that market, how that market relates to the country's national defense industrial strategy, and current and future markets. Country export levels into that market are also given.

**Transformations in the Defense Industrial Base.** This section discusses changes underway in the indigenous defense industrial base, the rationale for those changes, and where they may be headed. Topics include privatization, mergers, acquisitions, foreign ownership, and related subjects.

**Risks and Concerns.** This section summarizes major national concerns stemming from the current national armament strategy, transformations in defense industries and defense markets, and the emerging global armament system.

**Important Observations.** This section isolates key points from the previous sections that help understand how the country fits into the global transformations in defense markets and industries. Countries The twelve countries include three from Western Europe (France, Germany, and Italy), one from Eastern Europe (Russia), two from the Middle East (Iran and Israel), five from the Asian-Pacific region (Australia, China, India, Singapore, and Taiwan) and one from Latin America/Africa (South Africa). The aggregate approximate characteristics of these countries for 1997 are given in Table 1.1.) All quantities are expressed in \$B 1997 US. Import and export levels refer to arms deliveries. Collectively in 1997 these countries had a total military expenditure of \$248B, a total arms import level of \$15B, and a total arms export level of \$11.9B (1997\$US). The countries also are represented by traditional balanced importers/exporters (e.g., Germany), importers but not exporters (e.g., Taiwan), and exporters but not importers (e.g., Russia). Furthermore, the countries include some whose security

situation is more relaxed than in the past (e.g., Italy), and some whose security tensions are heightening (e.g., India). In the aggregate the 12 countries represent a suitable laboratory for investigating the details of the transformations from the perspective of specific participants. Date of Information The research on these countries took place during a volatile period in the transformation of defense markets and industries, with the volatility not yet over. For example, during the period of this research EADS was created in Europe, the Kargil conflict stimulated major and urgent Indian armament needs, several iterations of US-European trans-Atlantic policies were articulated and rescinded, and several countries (e.g., Australia, Germany, and Israel) tested US resoluteness on her export control policy. There have been events during the months since the research was completed for a given country that may have modified, accelerated, or even negated some of the specific activities described in the chapter contained herein on that country. Since the purpose of this research has been to obtain a sense of what the aggregate perspectives of a given country are on transformation-related issues, hopefully recent actions will not change the conclusions about the general direction of the vector each country is pursuing to deal with the consequences of strategic change.

The countries analyzed in this volume are:

|           |  |           |   |              |  |         |   |
|-----------|--|-----------|---|--------------|--|---------|---|
| Australia |  (50 KB)    | China     |  (71 KB)   | France       |  (89 KB)   | Germany |  (72 KB)   |
| India     |  (96 KB)   | Iran      |  (43 KB)  | Israel       |  (90 KB)  | Italy   |  (59 KB)  |
| Russia    |  (118 KB) | Singapore |  (49 KB) | South Africa |  (61 KB) | Taiwan  |  (37 KB) |